tion becomes more prominent, betraying itself by the greater tendency of the tissues to liquefy and, since hydration is now less, by softening.

The experiments also bear upon the problem of digestion and that special phase of it known as autolysis. The first changes observable in these reactions consist of swelling, followed by softening and dissolution of the proteins acted upon. Acids and alkalies have long been known to favor these initial steps in proteolysis, while salts have been known to inhibit them. Their action has usually been laid to the effect upon the enzymes themselves. As has been pointed out before,[4] acids, alkalies and salts produce at least as large and probably their greatest effects upon the proteins undergoing digestion. The important practical and theoretical bearings such considerations have upon laboratory practise and in the every-day problems of the hanging of meat, its preservation by salting, the prevention of putrefaction, etc., is self-evident.

The experiments also reemphasize the necessity of interpreting in the simpler language of colloid-chemistry the mass of experimental material now jumbled under the heading of "permeability" studies. It means little to say that under the influence of acids or of substances which in living cells produce acid effects (like the anesthetics) the "permeability" of the "plasma" membranes surrounding cells is increased so that albumin gets out or salts get in. Not only are plasma membranes figments of the imagination, but nothing is gained by heaping "permeability" properties upon them. "Permeability" is a physiological concept which needs itself to be explained. The proteins throughout a cell (not only in its hypothetical overcoat) can under the influence of acids, for example, be made to absorb water, to absorb salt,[5] to soften and to give off albumin. And as all these effects can be reduced through the addition of various salts, there would seem to remain little reason to ignore for the interpretation of well-known biological facts the simple principles of colloid-chemistry.

Martin H. Fischer
Joseph Eichberg Laboratory of Physiology
in the University of Cincinnati

[4] Martin H. Fischer and Gertrude Moore, *Am. Jour. of Physiol.*, 20, 330 (1907).

[5] Martin H. Fischer, *Jour. Am. Med. Assoc.*, 64, 325 (1915).

Societies and Academies

Section of Biology and Geology

Academy of Science and Art of Pittsburgh

During the year 1914–15 the Section of Biology and Geology of the Academy of Science and Art of Pittsburgh held fifteen meetings with an average attendance of about 150 members. The general topic under discussion was Evolution and the following papers were presented:

October 6, 1914. Dr. Frank Schlesinger, Director of the Allegheny Observatory: "Evolution of the Universe."

October 20. Professor Henry Leighton, of the University of Pittsburgh: "The Earth's History and Development."

November 3. Dr. Chas. R. Fettke, of the Carnegie Institute of Technology: "The History of the Rocks."

November 17. Dr. A. E. Ortmann, of the Carnegie Museum: "The Direct Evidence for Evolution."

December 1. Dr. O. E. Jennings, of the Carnegie Museum: "The Evolution and Ecology of Plants."

December 15. Dr. A. E. Ortmann: "Evolution in Animals."

January 5, 1915. Professor L. E. Griffin, of the University of Pittsburgh: "Embryology in its Relation to Evolution."

January 19. Dr. W. J. Holland, Director of the Carnegie Museum: "Paleontology."

February 2. Professor Roswell H. Johnson, of the University of Pittsburgh: "Experimental Evolution."

February 16. Mr. O. A. Peterson, of the Carnegie Museum: "The Evolution of Man."

March 2. Mr. George Seibel: "The Evolution of Society."

March 16. Professor L. E. Griffin: "Ant Behavior."

April 6. Professor Gardner C. Basset, of the University of Pittsburgh: "Heredity."

April 20. Dr. H. B. Davis, principal of the Training School for Teachers: "Evolution in Education."

May 18. Rev. Charles E. Snyder: "The Evolution of Religious Thought."

Charles R. Fettke,
Secretary